

XVIII. NOTES ON SOME SOUTH AMERICAN NABIDÆ,
WITH DESCRIPTIONS OF NEW SPECIES (HEMIPTERA)*

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Through the courtesy of Dr. W. J. Holland, Mr. H. G. Barber, and Dr. Edward Wagner the writer has been privileged to study small collections of *Nabidæ* belonging respectively to the Carnegie Museum, the American Museum of Natural History, and the Hamburg Zoölogical Institute. It is upon these collections that the following notes and descriptions are largely based. The writer desires to express to the above his appreciation of their kindness in submitting to him their undetermined *Nabidæ* for study, and to Dr. C. J. Drake, who has instigated many loans of material on his behalf.

Genus PACHYNOMUS Klug.

Subgenus CAMAROCHILUS subg. nov.

Pronotum arched, the sides constricted. Hemelytra longer than in typical subgenus, the coriaceous part more developed, its apex not so transverse, the membranal suture of the one hemelytron being in a straight line away from and parallel to the claval suture of the opposite hemelytron when the wings are normally folded on the back. Metapleuron flat, longer than broad. Second and third segments of intermediate and posterior tarsi subequal in length.

Type of subgenus, *P. (Camarochilus) americanus* sp. nov.

The following two closely related species are the first and only known American members of the subfamily *Pachynominae* Stål. This group may be briefly differentiated from the *Nabinae* and *Prostemmina* by the distinctly five-segmented antennæ and the absence of ocelli and metapleural orifices. It closely approaches the *Reduviidæ* in many characters. Heretofore the single genus, *Pachynomus* Klug, has contained four species inhabiting the Oriental and Ethiopian regions. The American representatives described below differ in certain characters from the Old World forms, and it is for these new species that the above subgenus is erected.

*Contribution from the Department of Zoology and Entomology, Iowa State College, Ames, Iowa.

1. *Pachynomus (Camarochilus) americanus* sp. nov.

Oblong-oval, widened behind, moderately shiny, clothed with very fine, short, pale pubescence, also with some long, fine hairs. Brown, the head at base, pronotum, scutellum in greater part, and apical margins of segments of venter darker fuscous brown to sordid black. The basal half of collum, antennæ, rostrum, a triangular patch on basal half of connexival segments (excepting the last), anterior femora (excepting wide apical ring, which is prolonged basally on anterior and posterior sides into broad stripes), intermediate and posterior femora (excepting broad apical rings), and all coxæ, trochanters, tibiæ, and tarsi, yellowish testaceous. Head longer than broad (36:26), the antecular part almost parallel-sided; vertex narrow (9), arched; postocular part very short, obliquely narrowed to basal constriction. Eyes moderately large, the width of each scarcely equal to that of vertex, the length faintly less than depth (13:15). Antennæ with first segment thick, scarcely attaining apex of head, second and third of equal thickness, fourth and fifth fine, thread-like, the three apical segments rather thickly clothed with fine hairs; proportion of segments, 12:32:31:26:(38?). Rostrum reaching between anterior coxæ, the second segment hardly surpassing insertion of antennæ, the third stout, twice as long as the second (25:12).

Pronotum broader than long (57:35), the collar angularly widened at the middle, the groove limiting it continued backward as a deep median longitudinal furrow, the posterior lobe marked off by a deep, convexly arcuate depression which ends on the sides before reaching the margin; the sides strongly narrowed anteriorly, sinuate, feebly margined in front of constriction; anterior lobe on each side near the middle with a wide shallow depression, its sides finely rugulose; posterior lobe finely longitudinally rugulose, the disc slightly depressed on each side before humeri, the basal margin strongly concave, thus leaving the mesoscutum widely exposed. Scutellum arched, with a median longitudinal keel bounded on each side along the basal half by a furrow. Hemelytra finely granulose, devoid of all but the very finest of hairs, the veins prominently raised, straight, unbranched, those of corium and clavus paralleled by rows of coarse punctures; embolium strongly widened distally, its apex as broad as that of corium, reaching as far as penultimate connexival segment, without evidence of transverse plica marking off cuneus; membrane fuscous, attaining tip of abdomen, with two elongate cells from the apex of the outer of which there extends a single vein.

Legs moderately long, the anterior and intermediate femora armed within with short, peg-like, brownish teeth and long, rigid setæ, the anterior ones greatly incrassate, as seen from the side, only about two and a half times as long (measured above) as deep (59:24). Anterior and intermediate tibiæ slightly curved (the latter more faintly so) and armed within with short teeth, their apices provided with small

pads. The second and third segments of intermediate and posterior tarsi subequal in length. Metapleuron flat, rugulose, without ostiole. Venter with the segments transversely ridged before their bases, thickly pilose, the second visible segment on each side toward the median line with a small, sunken, shiny spot, from which arises a very long fine hair; each succeeding segment with a similar pair of spots, which are placed progressively farther outward, those of the last segment being on the sides in line with the connexivum. Length, 8.6 mm.; width, 3 mm.

Holotype, male, La Chorrera, Panama, May 12, 1912.

2. *Pachynomus (Camarochilus) confusus* sp. nov.

Closely allied to *P. americanus* sp. nov., with which it agrees in general form and color. However, slightly larger, the anterior femora longer, with the dark markings extending inward much beyond middle and occupying the greater portion of femora as seen from above, the median pronotal groove more profound, with a distinct zigzag line along its bottom, the depressions on the anterior lobe of pronotum sharper and deeper, and the median length of basal lobe distinctly greater. The apical half of the scutellum is coarsely punctate. The last connexival segment is provided in the female (mutilated in male) with the pale triangular patch, so that in this species there are six pale spots on the connexivum (only five in *americanus*). Length, 9.2-9.8 mm.; width, 3.3-3.42 mm.

Holotype, male, Santarem, Brazil, in collection of Carnegie Museum. *Allotype*, female, taken with type, in author's collection.

3. *Pagasa luteiceps* (Walker).

1873. *Prostemna luteiceps* WALKER, Cat. Hemp. Heter. Br. Mus., VII, p. 135.
 1899. *Pagasa luteiceps* CHAMPION, Biol. Centr. Amer., Heter., II, p. 298; Pl. XVIII, figs. 16-16a.
 1909. *Pagasa luteiceps* REUTER ET POPPIUS, Acta Soc. Sci. Fenn., XXXVII, No. 2, pp. 26-27.
 1928. *Pagasa luteiceps* HARRIS, Entomologica Americana, IX, p. 21; Pl. IV, fig. 2.

Three macropterous examples of this species are at hand from Chapada, and Rio de Janeiro, Brazil, and Cacagualito, Colombia. They differ in no essential way from a specimen from Tobago Island, Panama (male) and a specimen from Barro Colorado Island (female) before me. The third rostral segment is slightly longer than the second, and the fourth just attains the apex of the anterior coxæ.

4. *Pagasa bimaculata* sp. nov.

Sub-elongate, smooth, pilose, and also sparsely setose, shiny; the scutellum, hemelytra, (excepting broad costal margins along basal two-thirds) and mesopleura dull; piceous to brown, the head and hemelytra marked with yellowish. Head piceous brown, the upper surface, (excepting a median longitudinal spot at base of tylus and a basal bifurcate patch extending around inner margin of eyes to sides), more or less luteous; longer than broad (40:32), the length of antecular portion from eyes to base of rostrum greater than width of vertex (17:14). Eyes large, placed with their hind margins on basal constriction of head, the length of one two-thirds greater than its width (15.9) and slightly less than its depth (17). Ocelli large, pale. Antennæ yellowish brown, the apical segments paler, pilose, the third and fourth segments and the base of the fifth segment also with long, fine hairs; proportional lengths of segments, 15:6:33:35:34. Rostrum pale brown, the first segment yellowish above, extending to the mesosternum; the first segment as broad as long, the second reaching base of head; proportions: II; III; IV = 36:32:15.

Pronotum smooth, broader than long (79:57), the anterior lobe deep piceous black, with a large reddish brown triangular patch at apex; posterior lobe deep brown, the transverse impression separating it from anterior lobe fine, beset with numerous punctures; basal margin deflexed, strongly and rather sharply emarginate in front of middle of scutellum. Scutellum brown, the base and sides darker and provided with several coarse deep punctures; the disc bifoveate near the middle, clothed with numerous long semi-erect brownish hairs; the apex truncate. Hemelytra brown, darkened apically and along veins, a large nearly circular patch occupying outer portion of corium and inner apical angle of embolium, fulvous; a small somewhat transverse spot on suture at base of outer cell of membrane, yellowish; sparsely clothed with semi-erect fuscous hairs; the inner margin of clavus with a row of coarse punctures, the outer vein of clavus and also the inner vein of corium likewise bounded on each side with a row of coarse punctures. Membrane reaching upon the penultimate abdominal segment, fuscous brown, the interior cell only about half as broad as the outer two cells. Legs brownish, the outer surface of anterior femora, the tibiæ, and tarsi paler; anterior femora strongly incrassate, nearly three times as long (from above) as deep (55:20), armed beneath with numerous piceous teeth; anterior tibiæ strongly widened on apical half, serrately dentate within; the trochanters of all legs and the intermediate (basally) and posterior femora with a few short, piceous teeth; intermediate and posterior tibiæ thickly setose, armed along anterior margins with two rows of stout spines. Mesosternum sulcate anteriorly. Venter brown, pilose, the segmental sutures paler. Length, 12 mm.; width, 3.65 mm.

Described from a macropterous female (*holotype*), Chapada, Brazil, October; in collection of the Carnegie Museum.

This species is the largest known member of the genus, and is to be readily recognized by its size and coloration and moreover by the armature of the intermediate and posterior femora. It pertains to the typical subgenus in which the second segment of the rostrum attains the base of the head and in which the hemelytra are more or less opaque with their veins obsoletely developed.

5. *Pagasa similis* Poppius.

1914. *Pagasa similis* POPPIUS, Ann. Mus. Zool. Acad. Sci., XIX, p. 136.

Chapada, Brazil. Two brachypterous females, which differ from Poppius' description only in that the hemelytra extend slightly beyond the apex of the second, reaching on to the true third segment of the abdomen, and the membrane slightly over-reaches the apex of the corium. The punctures along the claval and corial veins are indistinctly seen on the finely wrinkled hemelytra. The membrane is slightly more developed in one example than in the other.

A macropterous female (*morphotype*) from Jatahy, Prov. Goyas, Brazil, is in my collection. Except for the development of the wings and the pronotal changes resulting therefrom, this individual does not differ structurally from brachypterous specimens. In coloration, however, it is darker throughout, the pale markings of the hemelytra being obscure, but nevertheless present on the base of the clavus and slightly outward along the suture. The legs are fuscous to piceous brown, only the trochanters, extreme apices of femora, and middle of anterior tibiæ and tarsi being paler. The rostrum and antennæ likewise are darker. The species was originally described from a single brachypterous female from "Obidios, Amazonas."

Macropterous form: Hemelytra fully developed, finely wrinkled throughout, with a very few fine, short, recumbent hairs, the claval vein with a long upright seta before its base, the veins raised, prominent; membrane attaining apex of abdomen, fuscous, the veins distinct. Pronotum broader than long (45:40), the lobes of equal height, the sides feebly margined. Length, 6.8 mm.; width, 2.3 mm.

6. *Nabis capsiformis* Germar.

1837. *Nabis capsiformis* GERMAR, Silberm. Revue Ent., V, p. 132.
 1872. *Nabis kinbergi* REUTER, Öf. Vet. Akad. Förh., XXIX, No. 6, p. 90.
 1928. *Nabis capsiformis* HARRIS, Entomologica Americana, IX, pp. 36, 64; Pl. III, fig. 4.

Examples of this more or less cosmopolitan species are at hand or have been examined from the following South American localities: Argentina, Rio Bermejo, Prov. Salta., May, 1914, (Steinbach); Buenos Aires; Brazil, Santarem, Corumbá, and Rio de Janeiro; Peru, Arica.

7. *Nabis sordidus* Reuter.

1872. *Nabis sordidus* REUTER, Öf. Vet. Akad. Förh., XXIX, No. 6, p. 85.
 1872. *Nabis pallescens* REUTER, *ibid.*, p. 85.
 1890. *Nabis sordidus* CHAMPION, Biol. Centr.-Amer., Heter., II, p. 303; Pl. XVIII, figs. 26-28.
 1928. *Nabis sordidus* HARRIS, Entomologica Americana, IX, p. 41; Pl. II, fig. 3.

Specimens of this species, which is common in Eastern North America as far north as Maine, have been seen from Brazil. There are examples in the Hamburg Museum from San José, Costa Rica, and a macropterous female in the Carnegie Museum from Chapada, Brazil. The writer has previously recorded it from Panama, Guatemala, Mexico, and the West Indies.

8. *Nabis roripes* Stål.

1860. *Nabis roripes* STÅL, Rio Janeiro Hemip., I, p. 70.
 1890. *Nabis roripes* REUTER, Rev. d'Ent., IX, p. 297.
 1908. *Nabis roripes* REUTER, Mem. Soc. Ent. Belg., XV, pp. 99, 101.

For a long time the writer sought specimens from tropical localities which might represent this species, but invariably the few examples secured proved to be no more than the common *N. sordidus* Reuter. It was with much elation, therefore, that he discovered in a collection sent from the Hamburg Zoölogical Museum a single female from Colombia, which seemed to be the true *roripes*. Subsequently, a nice series of adults and nymphs belonging to the Carnegie Museum and the American Museum of Natural History came to hand. The species runs directly to *sordidus* Reuter in my key (*l.c.*, 1928, p. 34).

It may be recognized, however, by the almost uniform sordid brown venter, the shorter hemelytra of the brachypterous form, which reach on to the middle of the first dorsal segment of the abdomen, and by the larger more prominent eyes. The male clasper is quite similar to that of *N. deceptivus* Harris (*l.c.*, p. 45, Pl. II, fig. 5).

Specimens (brachypterous) are at hand from Chapada, Brazil, and Pandi, Colombia (Cundinamarca) W. Fritsche.

9. *Nabis spinicrus* Reuter.

1890. *Nabis spinicrus* REUTER, Rev. d'Ent., IX, p. 305.

1894. *Coriscus signatus* UHLER, Proc. Zool. Soc. Lond., 1894, p. 205.

1899. *Nabis signatus* CHAMPION, Biol. Centr. Amer., Heter., II, pp. 302, 304; Pl. XVIII, figs. 31-33.

1908. *Reduviolus spinicrus* REUTER, Mem. Soc. Ent. Belg., XV, p. 103.

1928. *Nabis spinicrus* HARRIS, Entomologica Americana, IX, p. 47; Pl. II, fig. 7.

Four examples, macropterous, Chapada, Brazil. The claspers of the males, of which there are three, are identical with those of specimens from Cuba, Grenada, Panama, Guadeloupe, and Hayti, including cotypes of *signatus* Uhler, in my collection. The species was originally described from Brazil. Two females respectively from Pará and Santarem, Brazil, in the Carnegie Museum, are doubtfully referred to this species.

10. *Nabis seticrus* sp. nov.

Slender, elongate, pilose; yellowish testaceous, the sides and under surface of head and also a median divaricate line above on the head, a pattern on anterior lobe of pronotum, five short longitudinal spots on posterior lobe, the base and extreme apex of scutellum, irregular patches on the abdomen above, a distally widened longitudinal spot on the inner half of the connexival segments and a broad longitudinal stripe on each side of venter, more or less embrowned or infuscated. Meso- and metasternum fuscous. Antennæ pale testaceous, the apex of the second segment and all of the third and fourth darker. Legs pale, a band before the apex of the femora, a similar sub-basal band on the tibiæ, and the apices of tibiæ and tarsi brownish. Head much longer than broad (23:17), the postocular part long, parallel-sided. Eyes large, prominent, the length of one slightly greater than width of vertex (8:7). Ocelli distinct and fairly conspicuous. Antennæ long, length of the first segment more than twice as great as width of head through eyes; proportion of segments—(♂) 35:48:53:40, (♀) 39:57:55:44. Rostrum attaining apex of intermediate coxæ, the second seg-

ment slightly longer than the third (24:20), the fourth half as long as the third.

Pronotum slightly longer than broad (σ^7 , 26:23), the sides almost straight, strongly converging anteriorly, the width at collar (13) one-half as great as median length, the disc flat, the two lobes of equal height, collar and posterior lobe distinctly punctate. Scutellum small, longer than broad, with a distinct depression behind the base. Hemelytra reaching on to the middle of third dorsal segment, the lateral margins slightly ciliate, the commissure scarcely longer than scutellum; membrane narrow, extending very slightly beyond apex of corium, its length slightly greater than that of commissure. Legs long, clothed with numerous long, fine, almost erect hairs, also with short, fine, more recumbent pubescence, the anterior tibiæ throughout and the anterior and intermediate femora beneath, thickly beset with rather short hairs, which are recurved or hooked at the apex; the four anterior legs armed and provided with fossæ as in *N. spinicrus* Reuter. Abdomen slightly widened at the middle, thickly and finely pubescent. Male genital segments long, the clasper with much narrower and more recurved blade than in *N. spinicrus* Reuter. Length, (σ^7 - ♀) 6.1-7.6 mm.; width, 1.2-1.6 mm.

Holotype, male, and *allotype*, female, Chapada, Brazil; in collection of Carnegie Museum. *Paratypes*, one male and seven females, taken with type, and one male, Rio Janeiro, Prov. Salta, Argentina, May, 1914, Steinbach, in collections of Carnegie Museum and the writer; two males and one female, Chapada, in collection of the American Museum of Natural History.

This easily recognized species belongs to the subgenus *Lasiomerus* Reuter and indeed is most closely related to the *N. spinicrus* of that author, with which it agrees in the possession of the long, rigid, spine-like setæ of the four anterior legs. It may be differentiated from *spinicrus* by the differently constructed hemelytra (which may prove to be variable, when more material is known) of the brachypterous form; the slightly larger body; longer legs and antennæ; and the differently constructed male claspers. The macropterous form is not known. The lengths of the antennal segments are slightly variable.